CAMILLE BAUER

KINAX HW730
Programmable hollow-shaft transmitter for angular position

For heavy duty applications

Main features

- Robust transmitter for angular position suitable for field applications
- Highest degree of mechanical and electrical safety
- Proven capacitive scanning system
- No wear, low annual maintenance and mountable anywhere
- Vibration- and shock-resistant
- Measuring range, sense of rotation, zero position and linear/V characteristic can be adjusted by a switch and two push-buttons
- Analog output signal 4…20 mA, 2-wire connection
- Zero position and end position are independently adjustable
- Capacitive scanning system provides absolute position immediately after activation
- With explosion prevention „II 2G Ex ia IIC T4 Gb", „II 2D Ex ia IIIC T80°C Db" and „II 2D Ex tb IIIC T80°C Db" according to ATEX and IECEx available
- With GL (Germanischer Lloyd) available

Intended use

The KINAX HW730 converts the angular position of a shaft into a load independent direct current signal, proportional to the angular position. The unit is contact free. It technically extends the delivery program of angular transmitters with a programmable version and thus creates a number of new technical application possibilities. The robust housing makes this unit ideal for applications in rough environments.

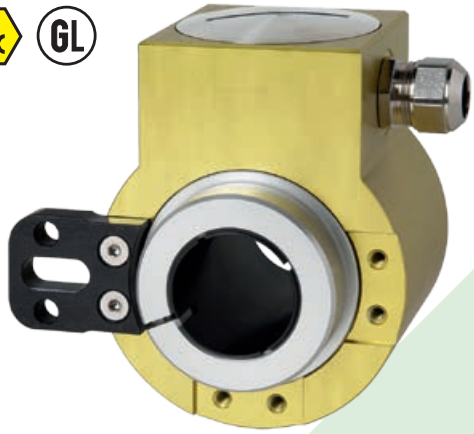
Technical data

General

Measured quantity:	Angle of rotation
Measuring principle:	Capacitive method Differential screen capacitor with contact-free, non-wearing positional pick-up. Drive shaft fully rotatable without stops

Measuring input

Angle measuring range:	Programmable between 0 ... 360°
Hollow-shaft diameter:	30 mm, by reduction 10, 12, 16 or 20 mm
Starting torque:	max. 0.7 Nm
Sense of rotation:	Adjustable for sense of rotation clockwise or counterclockwise



Measuring output

Overvoltage category:	II
Power supply:	Standard NEx: nominal voltage 24 VDC $^{+30\%}_{-50\%}$ protected against wrong polarity Explosion protection intrinsic ia: 12…30 VDC protected against wrong polarity (30 V must not be exceeded and don't go below 12 V) Explosion prevention (Protection by enclosure) tb: nominal voltage 24 VDC $^{+30\%}_{-50\%}$ protected against wrong polarity
max. input voltage Ui:	30V
max. input current Ii:	160mA
max. input power Pi:	1W
max. internal capacitance Ci:	22nF
max. internal inductance Li:	0
Output variable I_A:	Load-independent DC current, proportional to the input angle
Max. residual ripple:	< 0.3% p.p.
Standard range:	4 ... 20 mA, 2-wire
Response time:	< 3.5 ms
External resistance:	$R_{ext\ max.}\ [k\Omega] = \frac{H\ [V]-12V}{I_A\ [mA]}$ H = Power supply I_A= Output signal end value

Accuracy data

Error limit:	< ± 0.35°
Reproducibility:	< 0.1°

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Angle step (hysteresis):	linear: measuring range < 180°: 0.025° measuring range ≥ 180°: $\frac{0.05° \cdot \text{measuring range}}{360}$ V-characteristic: 0.025°
Influence of temperature output current (–40°…+85°C):	± 0,4 ‰/10K

Installation data

Material:	Housing: anodized aluminium
Mounting position:	Any
Connections:	Spring-type terminal block or sensor plug connector metal (M12 x 1 / 4 poles / only for NEx version).
Weight:	Approx. 820 g

Regulations

Immunity:	The EN 61 000-6-2 is observed Surge capacity acc. EN 61 000-4-5: 1 kV, 1.2/50 µs (line-earth)
Spurious radiation:	EN 61 000-6-3 and EN 61 000-6-4
Test voltage:	750 V DC, 1 min. All connections against housing
Admissible common-mode voltage:	100 V, 50 Hz
Housing protection:	IP 67 acc. to EN 60 529 IP 69k acc. to EN 40 050-9

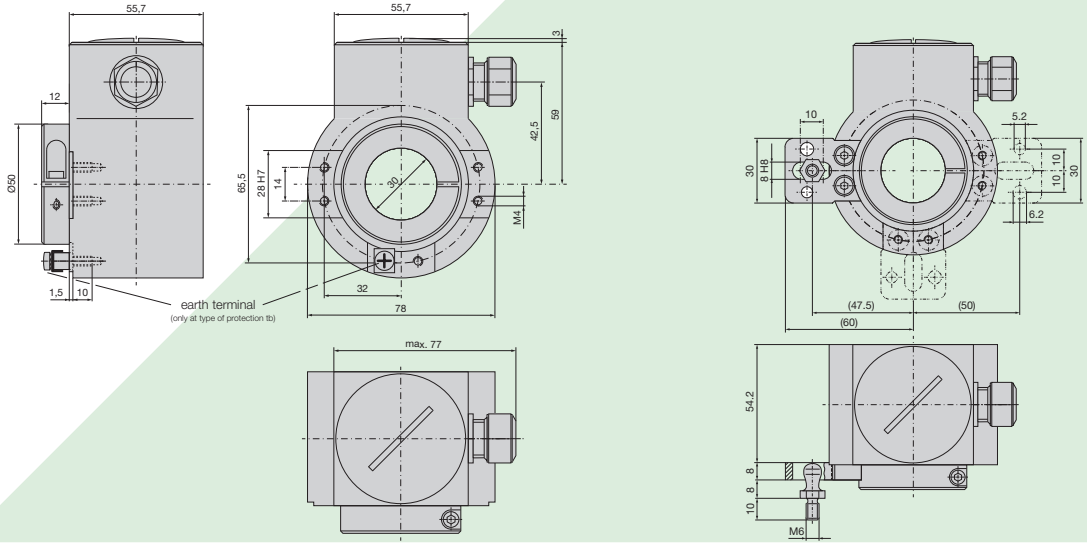
Environmental conditions

Climatic rating:	Standard NEx: Temperature – 40 to + 85 °C Rel. humidity ≤ 95% non-condensing
	Explosion prevention: Temperature -40 to 75 °C Rel. humidity ≤ 95% non-condensing
Transportation and storage temperature:	– 40 to + 85 °C
Vibration resistance:	≤ 100 m/s² / 10 – 500 Hz acc. IEC 60068-2-6
Shock resistance:	1000 m/s² / 11 ms acc. IEC 60068-2-27

Operation in potentially explosive environments

Gas explosion prevention:	Labeling:	Ex ia IIC T4 Gb
	Conform to standard:	ATEX: EN60079-0:2009 EN60079-11:2007
		IECEx: IEC60079-0:2007 IEC60079-11:2006
	Type of protection:	ia
	Temperature class:	T4
	Group according to EN60079-01:2009:	II
Dust explosion prevention:	Labeling:	Ex ia IIIC T80°C Db
	or	Ex tb IIIC T80°C Db
	Conform to standard:	ATEX: EN60079-0:2009 EN60079-31:2008 EN61241-11:2006
		IECEx: IEC60079-0:2007 IEC60079-31:2008 IEC61241-11:2005
	Type of protection:	ia
	or	tb (Protection by enclosure)
	max. surface temp.:	80°C
	Group according to EN60079-01:2009:	III

Dimensional drawing



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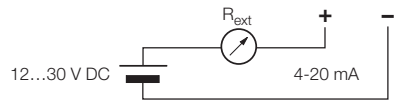
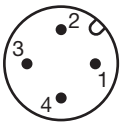
Electrical connections

For connecting the external wires, the transmitter has a plug connector M12 x 1 / 4 poles (only for NEx version) or a cable glands M16x1.5. During the version with a cable glands the connection via a spring-type terminal block made in accordance with diagram of connections.

Permissible cable-Ø: NEx 6-10 mm
Ex 6-8 mm
max. conductor cross-section: 1.5 mm²



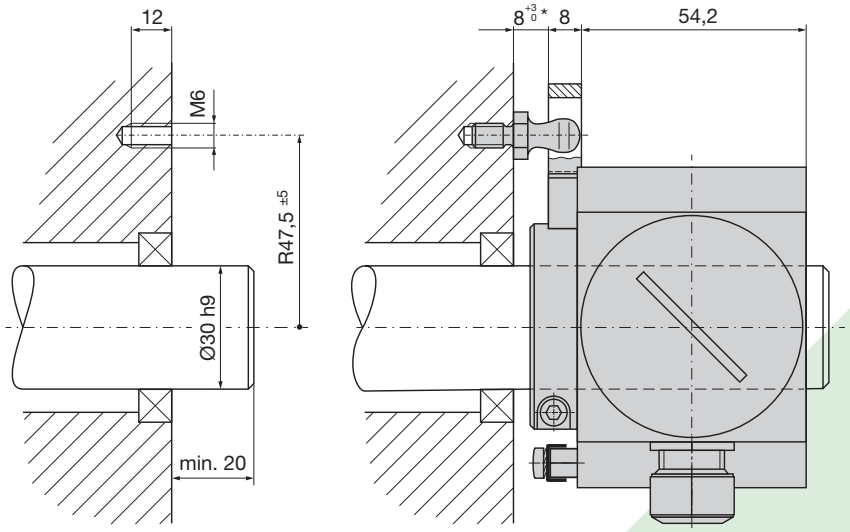
Connection allocation plug (only for NEx version)



Pin	Plug
1	+
2	–
3	not connected
4	

Montage

Installation example



* With spacers, this measure will be increased.

Specification and ordering information

Description			Blocking code	no-go with blocking code	Article No./ Feature
KINAX HW730		**Order code 730 - xxxx xxx**			730 –
1. Version					
Standard					1
ATEX EX	II 2G Ex ia IIC T4 Gb II 2D Ex ia IIIC T80°C Db		A		2
ATEX EX	II 2D Ex tb IIIC T80°C Db		A		3
IECEx	Ex ia IIC T4 Gb Ex ia IIIC T80°C Db	(in preparation)	A		4
IECEx	Ex tb IIIC T80°C Db	(in preparation)	A		5
2. Angle area mechanically					
Single-Turn (360°)					1
3. Hollow-shaft diameter					
Hollow-shaft 10 mm, electrically insulating					1
Hollow-shaft 12 mm, electrically insulating					2
Hollow-shaft 16 mm, electrically insulating					3
Hollow-shaft 20 mm, electrically insulating					4
Hollow-shaft 30 mm, non-insulating, standard					5
4. Torque support					
Standard					1

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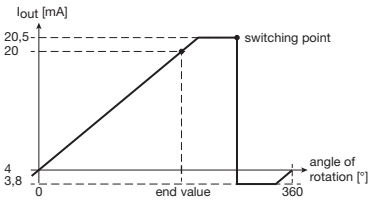
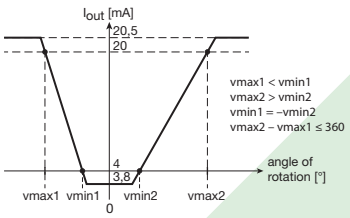
Description					Blocking code	no-go with blocking code	Article No./ Feature
KINAX HW730		**Order code 730 - xxxx xxx**					730 –
5. Output variable							
Current, 4...20 mA, two-wire							1
6. Electrical connections							
Gland standard							1
Gland with increased strain relief							2
Sensor plug M12						A	3
7. Test protocole							
Without protocole							0
Protocole German							D
Protocole English							E
8. Direction of rotation							
Direction of rotation clockwise					J		0
Direction of rotation counter-clockwise					J, G		1
V-characteristic					K, G		2
9. Measuring range							
Basic configuration (linear, 0 … 360°)						K, G	0
[°angle], 0...end value:			Switching point:			K	9
V-characteristic [± ° angle]	vmax1:		vmin1:			J	Z
	vmax2:		vmin2:				
 							
10. Marine version							
Standard							0
Version GL (Germanischer Lloyd)		(in preparation)					G

Scope of delivery

1 programmable transmitter KINAX HW730
1 Kit of torque support HW730
1 Operating instructions in German, French and English
1 Type examination certificate, only for Ex version devices

Accessories

Article	Article no.
Plug connector for M12 sensor plug, 5 poles	168 105
Adapter sleeve Ø10 mm	168 874
Adapter sleeve Ø12 mm	168 882
Adapter sleeve Ø16 mm	168 907
Adapter sleeve Ø20 mm	168 915
Kit of torque support	169 749

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